



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/538,505

06/09/2005

Keiichi Murakami

2005-0872A

7088

513 7590 03/14/2008

WENDEROTH, LIND & PONACK, L.L.P.

2033 K STREET N. W.

SUITE 800

WASHINGTON, DC 20006-1021

EXAMINER

PHAN, THIEM D

ART UNIT

PAPER NUMBER

3729

MAIL DATE

DELIVERY MODE

03/14/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/538,505	<b>Applicant(s)</b> MURAKAMI, KEIICHI	
	<b>Examiner</b> THIEM PHAN	<b>Art Unit</b> 3729	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 04 January 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) 12-19 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 June 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |                                                                                        |                                                                   |
|----------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>9/09/05</u> .                                                 | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election without traverse of Group I, Claims 1-11, filed on 01/04/08 is acknowledged.

The Restriction mailed on 12/07/07 has been carefully reviewed and is held to be proper. Applicant did not distinctly and specifically point out any logical error in the Restriction Requirement. Moreover, due to the lack of traversal on the merits, Applicant's election of Group I, has been treated as an election without traverse.

The Restriction filed on 12/07/07 is hereby **made Final**.

Applicant is required to cancel the nonelected claims (12-19) or take other appropriate action.

An Office Action on the merits of Claims 1-11 now follows.

### ***Specification***

2. On page 1, before "BACKGROUND ART", insert:

"CROSS REFERENCE TO RELATED DOCUMENT:

This application is the U.S. National Phase under 35 U.S.C. 371 of International Application PCT/JP02/12842, filed December 09, 2002."

### ***Abstract***

3. Applicant is reminded of the proper language and format for an abstract of the disclosure.

Art Unit: 3729

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

Currently, the Abstract has 192 words counted.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-4, 7, 8 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yasue et al (US 6,010,768) in view of Applicant's Admitted Prior Art, hereinafter AAPA.

**With regard to claims 1 and 7**, Yasue et al teach a method of producing multilayer printed circuit board, including the steps of:

- forming a thermosetting resin layer (Fig. 3C, 14) so as to fill spaces between circuit patterns (Fig. 3C, 5 & 5') formed on a surface of the printed wiring board (Fig. 3C, 1);
- heating and curing the resin layer (Col. 23, lines 52 & 53); and then
- polishing said cured resin layer covering said circuit patterns, thereby exposing said

circuit patterns (Col. 24, lines 1-4); except for heating and curing the resin layer in a reduced pressure environment.

AAPA teaches a method of manufacturing multilayer printed wiring board, which teaches the pressing of the non-cured resin sheet in a reduced pressure atmosphere (Specification, page 1, section 0005) against the circuit board, in order to remove the air bubbles in the resin.

It would be obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Yasue et al by applying the resin sheet pressing at reduced pressure atmosphere of the non-cured resin in a reduced pressure chamber, as taught by AAPA, in order to remove the air bubbles in the resin before the heating and curing then pressure release and cooling of the resin layer.

**With regard to claim 2**, AAPA teaches that the applied pressure is increased in predetermined steps (Specification, page 1, section 0005) in order to flatten the resin layer.

**With regard to claims 3 and 4, 8, 10**, Yasue et al in view of AAPA teach a method of producing multilayer printed circuit board including the pressing of resin layer (AAPA, page 2, section 0005) and the resin particles of size about  $1/10^{\text{th}}$  of the circuit patterns thickness (Yasue et al; col. 23, lines 42-45), which reads on applicant's claimed invention; except for pressing the resin layer with a metallic foil having a roughened surface facing said resin layer.

At the time the invention was made, it would have been an obvious matter of design choice to a person of ordinary skill in the art to have a metallic foil with a roughened surface pressing against said resin layer because applicant has not disclose that having a metallic foil with a roughened surface pressing against said resin layer provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore,

Art Unit: 3729

would have expected applicant's invention to perform equally well with a pressing against the resin layer because it forces the resin layer to fill spaces between circuit patterns (AAPA, page 2, section 5; Yasue et al, fig. 3C, 5) as well.

Therefore, it would have been an obvious matter of design choice to modify Yasue et al in view of AAPA to obtain the invention as specified in Claim 3.

6. Claims 5, 6, 9 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yasue et al in view of AAPA and further view of Fukutomi et al (US 6,268,648).

**With regard to claims 5, 6, 9 and 11**, Yasue et al in view of AAPA teach a method of producing multilayer printed circuit board including the copper circuit patterns (AAPA, page 1, section 0002) and the pressing against the resin layer (AAPA, page 2, section 0005), which reads on applicant's claimed invention; except for having a pressing metallic foil formed of different metal than the copper circuit patterns.

Fukutomi et al teach a method of manufacturing a semiconductor chip package substrate, using a nickel metallic layer (Fig. 7, 11), which is used to press and bury the copper wiring (Fig. 7, 12) against and into the prepreg (Fig. 7, 14) in order to form a barrier layer (Abstract) to a carrier layer (Fig. 7, 10).

It would be obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Yasue et al in view of AAPA by applying the nickel metallic layer different from the copper circuit, as taught by Fukutomi et al, in order to form a barrier layer to a carrier layer.

***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tim Phan whose telephone number is 571-272-4568. The examiner can normally be reached on M & Tu, 6AM - 2PM, and W & Th, 9AM – 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on 571-272-4690. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Phan Thiem/

Tim Phan  
Examiner  
Art Unit 3729

tp  
March 1, 2008